

Serial No.: 10/075,596

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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re patent application of

Docket No. FS-00738

Bruce Hanson

Serial No.: 10/265,568

Group Art Unit: No. 3653

Filed: October 8, 2002

Examiner: JONATHAN R. MILLER

For: **FLAT MAIL EDGE BIASING
MACHING AND METHOD OF USE**

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

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**DECLARATION UNDER 37 C.F.R. §1.132
OF
MICHAEL WISNIEWSKI**

Sir:

I, Michael Wisniewski, declare as follows:

1. I am a graduate of DeVrie University, Chicago, Illinois. My Bachelors degree is in Technology Management.

2. I have been an employee of Lockheed Martin Corporation from 1998 to present. My present title is Senior System Engineer. In my capacity as Senior System Engineer, my responsibilities and tasks include the design, support, procurement and implementation of integration systems. In particular, my responsibilities include the architectural designs for large mail integration systems. This function includes the design and implementation of feeder heads, flat sorting machines, large scale integration, sequencing and sorting systems, amongst other systems. Many of the systems in which I design use sensors, optical character recognition systems and feeding mechanisms.

3. Prior to being employed by Lockheed Martin Corporation, I was employed at Bell & Howell for approximately 27 years. In my most recent capacity at Bell & Howell, I was a Senior System Engineer responsible for the design and implementation of postal development projects for international post offices. This function included leading engineering teams in the design and implementation of flat

sorting machines, flat sorting feeders and many other subsystems for mail integration systems such as, for example, bar code printers. Many of these systems implemented sensors and various types of detectors, optical character recognition systems and feeder head mechanisms, to name a few.

4. I hold many patents related to mail integration systems. A partial list of these patents include:

- a. USPN 5,954,330 : Method and apparatus for synchronizing a document feeder with a mail sorting conveyor;
- b. USPN 5, 934,666: In-feed magazine apparatus and method for loading documents; and
- c. USPN 5,829,742: In-feed magazine apparatus and method for loading documents.

5. My education and years of service as a system engineer in the field of mail integration systems, using mail feeders and sensory technologies such as, for example, sensors and optical character recognition systems in such integration systems, establish me as an expert in the field of mail integration systems. This qualifies me to provide evidence on the level of skill in the art and on what would be obvious to one of ordinary skill in the art.

6. A person of ordinary skill in the art would have an engineering degree and approximately 2 years of experience in the design, construction or repair of integration systems using subsystems such as sensory and feeder technologies.

7. I have reviewed the patent application having Serial No. 10/075,596 and the Office Action dated June 19, 2003. My review of the patent application having Serial No. 10/075,596 included reviewing Figures 1-5 and reading the "Detailed Description of a Preferred Embodiment of the Invention" and "Claims" sections in great detail.

8. After reviewing the above documents related to patent application having Serial No. 10/075,596, it is my expert opinion that the disclosure of the invention, as read in its entirety, would enable one of skill in the art to make and use the claimed invention without undue experimentation. It is

also my expert opinion that the specification discloses an invention that is operative and has utility; namely, allowing product to be oriented with edges in a homogenous orientation. I thus respectfully disagree with the Examiner's assertion in the June 19, 2003 Office Action that claims 1-21 contain subject matter which was not described in the specification in such a way as to reasonably convey to one of skill in the relevant art that the inventor(s), at the time of the application was filed, had possession of the claimed invention. I also disagree with the Examiner that the disclosed invention lacks utility and is inoperative.

9. In my expert opinion it is readily ascertainable from the reading of the disclosure, including a review of the drawings, that one of ordinary skill would be able to make and use a feeding head mechanism, as described in the specification, without any undue experimentation. That is, it is my opinion that it is readily clear from a reading of the disclosure how the vacuum conveyor is capable of picking up bound products and moving them from the central compartment to one of the side compartments without resulting in the cover being "ripped off" and the machine jamming. This invention, in my expert opinion, provides utility and is operative. This conclusion is based on the following facts and observations.

10. First, one of ordinary skill in the art would readily recognize how a feeding head and more particular a vacuum conveyor would work. This is known in the art and can be seen in, for example, USPN 6575450.

11. Second, the disclosure, itself, provides ample description to allow one of ordinary skill in the art to make and use the invention without undue experimentation. In the disclosure, at the paragraph spanning pages 6 and 7,

[t]he movement mechanism 112 is designed to move or slide the central stack of products 108a from the central compartment 102a to either of the side compartments 102b or 102c based on information received from the optical edge recognition system 113. A belt 118 is also provided for moving the product (discussed further with reference to Figure 4).

12. Third, with reference to Figure 4, the disclosure state that

[t]he feed head mechanism 110 includes two separate vacuum chamber assemblies 112, each with multiple chambers and a belt 118.... The vacuum chambers 112 are connected to a vacuum source 122 which provides a vacuum or suctioning to each of the suction ports 120, depending on the information received from the optical edge recognition system 113 (i.e., the orientation or position of a bound edge of the product). In operation, the vacuum source 122 provides a vacuum to the vacuum chamber 112 of one of the belts 118 which, in turn, then moves the product from the central stack 108a. The belt 118 is then activated so as to transport the product from the central stack 108a to one of the other stacks 108b and 108c. The suctioning can then be deactivated. The belts or other movement mechanism may then incrementally move the stacks, as discussed above.

13. Fourth, the description of Figure 2 further assists one of ordinary skill in the practice of the invention without the need for undue experimentation. By way of illustration, the specification at page 7 discloses

... the incremental movement of belt 114a moves the stack 108a substantially in contact with or proximate to the feed head mechanism 110 in order to allow the feed head mechanism to move product from the central stack 108a to either the compartment 102b or 102c, depending on the location of the bound edge of the product.

14. Keeping with the teachings of the disclosure, as discussed above, in the present design, it would be readily ascertainable that the feeder head mechanism includes vacuum ports and belts which are used to move mail pieces such as magazines or other types of flats (hereinafter referred generally as product) through the mail integration system. The product would be moved into contact with the vacuum source via the movement of the stack 108a by the belt 114a. Once in contact, it would be readily ascertainable by reading the specification and reviewing the figures, that the vacuum source would overcome frictional forces acting on the underside cover to move the product from the center compartment to either of the side compartments via the belts 112 of the feeder head mechanism.

15. Additionally, as is seen in Figure 4, the two belts of the feeder head mechanism are seen to be positioned at the opposing sides of the feeder head mechanism. One of ordinary skill in the art would

ascertain from the reading of the specification and general knowledge in the field of feeder head mechanisms that the position of the belts correspond substantially to a position proximate the bound edges of the product. The bound products, which is customary, are stacked in an alternating fashion, i.e., 180 degrees in orientation, in order to prevent a "banana" effect. This is clearly described at pages 1 and 2 of the disclosure. Due to the placement of the belts and the orientation of the product, this would allow each of the belts to move the product proximate to the bound edges. By moving the product near the bound edge, one of skill in the art would recognize that the product would act as a homogenous product. This would prevent the product from ripping or jamming the machine, even if the vacuum only grabbed the cover.

16. Also, it is known by those of ordinary skill in the art that a suction created by the vacuum source can bleed through a cover of the product to inner pages, depending on the granularity of the paper. This may even happen when the cover has a laminate. This would allow the vacuum source to "grab" several pages of the product. Again, this would allow the product to behave as a homogenous product. In some smaller applications, the suction of the vacuum source could bleed through all of the pages to move the product, again, as a homogenous product. In either of these case, this would also assist in the prevention of ripping of the cover or jamming of the machine. This would be the case regardless of the placement of the belts. Thus, the belts may be located at any position relative to the bound edges, in this implementation.

17. Alternatively, one of ordinary skill in the art would also readily recognize that the product may be packaged in plastic wrap or have a small tab extending from the front and rear covers to hold the product as a homogenous product. In these cases, the product could be transported between the center compartment to either side compartments by the transporting belts without any concern for ripping the cover or jamming the machine. This would be the case regardless of the placement of the belts.

18. In my expert opinion it is also readily ascertainable from the reading of the application, including a review of the drawings, that one of ordinary skill would be able to make and use a detection system, as described in the specification, without any undue experimentation, and that the inventor(s)

had possession of the claimed invention, at the time of filing of the application. This conclusion is based on the following facts and observations.

19. Figure 1 shows the use of an optical character recognition (OCR) system, which is described at the paragraph spanning pages 6 and 7, as reproduced at paragraph 11.

20. It is known by those of ordinary skill in the art that an OCR takes a picture of a feature and analyzes the picture of the feature to determine certain information. This information can be address information as well as any other features such as a rounded or bound edge of a product. As should be understood by those of ordinary skill in the art after reading the disclosure, the OCR can be used to determine bound or non bound edges of a product by taking a picture of the edge and analyzing the picture for certain traits. By way of example, the OCR would take a picture of one side of the stacked product. Once a picture of one edge is taken, the use of a standard block detection algorithm can be used to "block off" the picture of the edge of the product. One such algorithm is commonly used by Lockheed Martin Corporation for use with mail integration systems; however, many such systems exist on the market at the time of filing of the application. Another such algorithm is manufactured by NEC. After the block detection algorithm "blocks off" the edges, it can then analyze these edges for certain preprogrammed traits such as, for example, rounded edges, non rounded edges, staples or other edge related features. The OCR will then represent the edges as different colors. In this manner, a bound or rounded edge would be a different color than a non bound edge. In a black and white system, the system will represent the edges as a gray scale image, i.e., a darker color is bound edge. This information would then be provided to the feeder head mechanism to move the product in an appropriate direction.

21. This same concept can also be used with glued edges, product wrapped within plastic or a host of other features. Simply, the colored portions can represent any difference between the package or other feature of the product.

22. The detection system may also be an optical sensor or array as shown in Figure 4. One of ordinary skill in the art, from reading the disclosure, would know how to implement such a sensor. This type of sensor would be, for example, a reflective sensor which senses a different reflectivity depending

on the feature of the product being sensed. In a bound product, a different reflectivity would be associated with bound or rounded edges, non bound edges, glued edges, stapled edges or other features.

23. By detecting the bound edge or other feature, the OCR (or other sensor) can then provide information to the feeder head mechanism for incrementally moving the belts, as discussed at page 7 of the specification, in one of two directions depending on the provided information. The vacuum source would provide a suction to the top product and then the use of the belts would move the product, based on the received information, to either of the side compartments in order to orient the edges of the product in a homogenous manner. This has utility in the integration system art.

24. In my expert opinion, the disclosure at page 9, read in view of the remaining portions of the disclosure, would also allow one of ordinary skill in the art to make and use the entire invention without undue experimentation. In my further expert opinion, the passage at page 9, in view of the entire disclosure, would also show that the inventor(s) had possession of the invention at the time of filing of the application. By way of illustration, the specification at page 9 discloses

... in step 502, the optical edge recognition system 113 is activated. In step 504, a determination is made as to whether a first edge is rounder than a second edge of the product. If the first edge is rounder than the second edge, in step 506, the suctioning system for the first moving mechanism 112 is activated. In step 508, the product in the central stack 108a is elevated or suctioned. In step 510, the belt is activated and the product is transported from the central stack 108a to the side compartment 102b (or 102c). The central plate 106a is then incrementally moved towards the feed head mechanism, in step 512, and the side plate 106a (or 106b) in which the product was positioned thereon is incrementally moved downward in step 514. In step 516, the suctioning mechanism 122 is deactivated. Note that the deactivation of the suctioning mechanism 122 may be performed at any time after step 510.

25. By reading the above passage, in view of the remaining passages and figures, one of ordinary skill in the art would readily be able to ascertain how to make and use this invention and such a skilled person would recognize that the invention is operative and has utility. That is, one of ordinary skill in the art would readily recognize:

- a. an OCR (or other sensor) is used to detect the bound or non bound edge (or other feature) of a product to determine the orientation of the product. This would be accomplished by using any known block recognition algorithm or reflectivity of the feature;
- b. the information would be given to the flat head feeder mechanism;
- c. this information would then be used to activate the suctioning system for the appropriate belt which, in turn, would move the product in the central stack to one of the side compartments; and
- d. the product would then be transported without ripping the cover or jamming the machine since, for example, (i) the belts may be located near the bound edges, (iii) the product may be packaged, (iii) the product may have a tab on it to secure the covers to one another, (iv) the suction may bleed through several pages, or the like.

26. In my expert opinion, this shows that there was utility and operability to the invention, as disclosed. Additionally, this shows, in my expert opinion, that the inventors had possession of the invention at the time of filing of the application and that there would be no need for any undue experimentation by those of ordinary skill in the art to make and use the invention, after reading the disclosure in its entirety.

27. In further support of my expert opinion that there is utility to the invention, the opening paragraph at page 5 clearly describes that this invention is used to move product in one of two directions so as to orient the product in a homogenous manner. Specifically, this passage recites, in part,

In general, the optical edge diction systems detects an orientation of the bound edge of the product This information is used to activate the feed head mechanism which, in turn, moves or slides the product in one of two directions in order to orient the edges of the products in a homogenous manner, i.e., will all of the bound edges facing in a same direction.

In addition to showing that there is utility to the invention, i.e., orienting the products in the homogenous manner, this passage also shows that the inventors, at the time of the filing of the application, had possession of the claimed invention, as recited in at least independent claims 1, 13 and 17.


28. There would only be the need for one detection system. There would be no reason to provide two such detection systems since there is no reason for this redundancy or for any comparisons between results of two such systems.

29. In view of the above, in my expert opinion, the invention is operative and has utility in the field of integration systems. That is, the invention can be used to orient the product such that the edges of the product are stacked in a homogenous orientation. This is accomplished by moving the product from the central stack to either side compartment. This is taught by the disclosure, as discussed above.

30. In view of the above, I submit that the disclosure of patent application having Serial No. 10/075,596, as originally filed, clearly teaches the claimed invention, and that one of ordinary skill in the art, after reading the disclosure (as originally filed) would be able to make and use the claimed invention without undue experimentation. It is also my expert opinion that claims 1-21 contain subject matter which was described in the specification in such a way as to reasonably convey to one of skill in the relevant art that the inventor(s), at the time of the application was filed, had possession of the claimed invention. Also, in view of the above, it is my expert opinion that the invention, as disclosed, is operative and has utility.

31. I declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code, and that such willful false statements may jeopardize the validity of the above-referenced application and any patent issuing thereon.

Date: 08/18/03


Michael Wisniewski